

**FACT SHEET FOR NPDES
PERMIT NO. WA-005207-8**

**DARIGOLD, INC.
DBA WESTFARM FOODS
SUNNYSIDE FACILITY**

SUMMARY

WestFarm Foods is seeking reissuance of the National Pollutant Discharge Elimination System Permit for its facility located at Sunnyside, Washington. This permit will regulate discharges to Joint Drain 33.4 (JD 33.4) and the Port of Sunnyside's Industrial Wastewater Treatment Facility (IWWTF). The permit also regulates the discharge of other process wastewaters at locations documented in the company's Operating & Maintenance (O&M) Manual's Appendix B.

The facility produces bulk cheese and dried whey. On occasion the plant produces, as a product, milk protein concentrate and milk permeate. The plant is capable of processing 4.5 million pounds of raw milk into 450,000 pounds of cheese and 300,000 pounds of whey powder each day, seven days a week.

The facility's reverse osmosis and non-contact cooling process wastewater is discharged to JD 33.4 (through Outfall 001) so as to not overload the IWWTF's hydraulic capacity. This wastewater frequently exceeds the State Water Quality Criterion for temperature, which is 18 °C. In addition, the ammonia concentration in this discharge may exceed State Water Quality Standards for toxic substances.

The largest volume of wastewater is produced by cleaning the various vessels utilized in producing cheese and whey products. This wastewater averages 495,000 gallons per day (gpd) and is discharged through Outfall 002 to the Port's IWWTF.

Outfall 003 is designated for process water and/or wastewater not disposed of through Outfall 001 or Outfall 002. The discharge through Outfall 003 is regulated by the terms and conditions set forth in WFF's O&M Manual Appendix B. At the time the proposed permit was drafted, salty process water was being trucked to WestFarm Food facilities in King County; one is located in Issaquah and the other is located in Seattle on Rainier Avenue. This salty wastewater is pH neutralized, then discharged to King County Industrial Wastewater Treatment System. The Outfall 003 location(s) may change during the life of the proposed permit. Therefore, the outfall location is not designated in the proposed permit's S1.DISCHARGE LIMITATIONS.

A total of 17 industries discharge wastewater to the Port's IWWTF collection system. The facility's process wastewater discharge to the IWWTF possesses significantly high concentrations of total and fixed dissolved solids. WestFarm Foods discharges approximately 63 % of the total fixed dissolved

solids in IWWTF's influent. Since the IWWTF ultimately discharges approximately half of its effluent to ground water, the WestFarm Foods effluent has contributed to the Port IWWTF's history of exceeding State Ground Water Standards for these pollutants.

Due to the risk of contributing to exceedances of State Water Quality Standards, the permit requires WestFarm Foods to meet a Compliance Schedule which will ensure the State's surface and ground waters are not polluted. An Engineering Report that develops a plan for all known, available, and reasonable methods of prevention, control, and treatment (AKART) for discharges through Outfalls 001 and 002 is a necessary component of the Compliance Schedule.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the State is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Darigold, Inc., dba WestFarm Foods
Facility Name and Address	WestFarm Foods – Sunnyside 400 Alexander Rd. / P.O. Box 876 Sunnyside, WA 98944
Type of Facility:	Cheese and powder milk production
SIC Code	2022, 2023
Discharge Location: Outfall #001	Waterbody name: Joint Drain 33.4 Latitude: 46° 18' 05" N Longitude: 120° 01' 08" W
Discharge Location Outfall #002; Port of Sunnyside sewer pipe	Latitude: 46° 18' 01"N Longitude: 120° 01' 03"W
Discharge Location Outfall #003	As given in the most recent, Department of Ecology approved, Appendix B of WestFarm Food's O&M Manual

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

History

Darigold, Inc., d.b.a. WestFarm Foods began operations at its facility just south of Sunnyside near the junction of Alexander and Midvale Roads in December 1991, utilizing the corporate name of Darigold, Inc. The company changed its corporate name to WestFarm Foods on August 1, 1999.

When operations commenced in 1991, the plant produced evaporated powdered milk and cream from raw milk. The cream was shipped to other sites for processing.

Cheese production at the facility started in 1995, with a significant plant expansion. Cheese and cheese whey production have doubled at the plant since the last permit was written, in 1997. New construction at the plant began in 1997, with the expanded production beginning in early 1998. Another expansion occurred in 2001, with an addition of a whey evaporator and boiler.

Industrial Process

The plant is capable of processing 4.5 million pounds of raw milk into 450,000 pounds of cheese and 300,000 pounds of whey powder every day, seven days a week.

The amounts of raw materials utilized and product produced per year, reported on the facility's 2005 State wastewater discharge application, are given in the following table:

Table 1: Raw Materials and Products

Raw Materials	
Type	Quantity
Whole Milk	1,643 million lbs/year
Ultra-filtered Milk	730 million lbs/year
Condensed Whey	180 million lbs/year
Condensed Milk	7.3 million lbs/year
Cream	2.9 million lbs/year
Products	
Type	Quantity
Cheese	154 million lbs/year
Dry Whey	111 million lbs/year
Milk Protein Concentrate Permeate	18 million lbs/year
Milk Protein Concentrate	12 million lbs/year
Sweet/whey Cream	7.3 million lbs/year
Condensed Whey	3.8 million lbs/year
Non-Fat Dry Milk	281,000 lbs/year

[Note: The following industrial process details have been extensively excerpted from WestFarm Foods' 1998 O&M Manual.]

Cheese Production

The WestFarm Foods processing plant at Sunnyside converts raw milk into cheese, whey powder, milk powder, condensed skim milk, sweet cream, milk protein concentrate, and whey cream. Milk flows from the receiving area to storage silos and then to one of the production processes as described below. The finished products are packaged and shipped to customers by truck or rail.

Raw milk contained in trailer tank trucks is unloaded in the covered receiving bays adjacent to the southwest corner of the facility. The milk in the truck's tanks is screened for antibiotics, and, if acceptable, is pumped through 4 inch stainless steel lines into one of six 60,000 gallon silos. The trailer tanks are washed in the receiving bays on a daily basis. The tank wash consists of a water pre-rinse to the drain, a re-circulated caustic wash, a post-rinse to the drain, and a sanitizing rinse to the drain. The drains in the receiving area are routed to the Port's wastewater plant.

Milk from one of the 60,000 gallon silos is pumped through a 4-inch line to the cheese milk pasteurizer. The cheese milk pasteurizer is capable of processing 180,000 pounds per hour. A normal processing run is 20 hours. This is followed by a 4 hour cleanup cycle. The cleanup consists of a pre-rinse, caustic wash, post-rinse, acid wash, and final rinse. All of the spent cleaning solutions are routed to the Port's IWWTF. The concentration of the caustic is a 1.5% solution. The concentration of the acid wash is a 1% solution.

A starter bacteria (inoculate culture) is added directly to the pasteurized milk while being piped to the cheese vats. The starter is made up in 1,100 gallon vats. The processing equipment to make the starter is washed with chemical solutions identical to those used for washing the cheese milk pasteurizer. These chemical rinses go directly to the drain and are routed to the Port's wastewater plant.

The pasteurized milk and starter (with bacteria) is pumped to one of ten 55,000 pound capacity cheese vats. Other ingredients are added to the milk in the vat in the cheese-making process. The milk is in the vat for about 2.5 hours while the curd is formed. When this step in the process is complete, the curds and whey are transferred to a curd and whey drainer machine through 4-inch lines using positive displacement pumps. The cheese vats are washed after each transfer using caustic and acid solutions, prior to pumping milk into the vat again. In this case, the caustic and acid solutions are reused many times as they are collected in separate tanks at the end of the wash cycle.

In the curd and whey drainer, acidity is allowed to develop as the whey drains from the curd. The whey is collected and pumped to storage prior to being processed into powder. The cheese machine is washed once each day at the end of production. The caustic and acid cleaning solutions are reused throughout the week. The tanks are drained and washed weekly.

The cheese curds then go to the salting machine where salt is applied. Any whey (salt whey) that drains from here is collected and stored, prior to being processed with the sweet whey. This machine is washed daily with the same solution used to wash the cheese draining machine.

The salted cheese curds are conveyed under vacuum to the 16 block-forming towers where 40 pound blocks of finished cheese are extracted. These towers are also washed daily with the chemical solutions used to wash the draining and salting machines.

The cleaning process in the cheese plant utilize rinse water more than once prior to losing it to the drain. Post-rinses from the caustic and acid washes are collected and used as pre-rinses for the next wash.

The sweet whey and salty whey are collected in separate storage tanks. The salty whey is run through a dia-filtration process to convert it to sweet whey. The salt water permeate from this dia-filtration process is collected in tanker trucks and transported to a location designated in the

company's most recently approved O&M Manual, Appendix B (designated in the Permit as Outfall 003).

The dia-filtered salt whey is then added to the sweet whey on the way to the powder plant. The whey is pumped through clarifiers to remove cheese fines. The cheese fines are pumped to the cheese machine draining belt and incorporated back into the cheese. The wash of the dia-filtration membrane unit is performed daily. These cleaning solutions are routed to the Port's industrial wastewater plant.

After the clarification process, the sweet whey is concentrated in a vacuum evaporator. The concentrate is aged to allow the lactose to crystallize properly, and then dried in a spray dryer. The water vapor from the vacuum evaporator is condensed (to recover the heat value), and this condensate is termed "cow water" (see Table 2 for more information on cow water volumes).

The cow water is further processed by two sets of reverse osmosis units in parallel to provide fresh water for use in the plant (e.g. use in preparation of cleaning solutions). The reject solution from the reverse osmosis units is discharged through Outfall #002 to the Port IWWTF. The excess cow water is then discharged to Outfall #001. The cow water constitutes the greatest portion of the discharge to Outfall #001 (Joint Drain 33.4). A significant fraction of Outfall #001's discharge consists of non-contact cooling water. A small fraction of the discharge is storm water, which is collected from rooftops and parking lots.

The facility makes extensive use of heat exchangers to recover and re-use heat after pasteurization, drying, etc. The primary heat sources are two boilers, which produce hot water for heating milk and whey, and a hot air source for the dryers. The facility also has refrigeration equipment for keeping raw milk cold, and cooling and storing the cheese. The refrigerators use ammonia as the working medium; chilled glycol solution is used in applications where a leak could contact the milk. Evaporative cooling towers are utilized in addition to counter-current heat exchangers. Blowdown from the boiler and cooling towers is discharged through Outfall #002, to the Port's industrial wastewater plant.

Powder Production

Sweet and salt whey collected from the cheese plant is passed through clarifiers. Excess butterfat is removed from the whey through the use of 3 whey separators. Each separator can process 70,000 pounds of whey per hour. The butterfat collected is heat-treated, cooled, and pumped to a storage tank. This product is loaded out and sold to outside processors. The cleaning solutions are used once and routed to the Port's industrial sewer. Again, the chemicals used are 1.5% caustic and 1% acid.

The skimmed whey is pumped through a pasteurizer capable of processing 200,000 pounds per hour. The pasteurizer, clarifiers, and separators are washed together once each day. The chemical solutions are used once and routed to the Port's industrial wastewater plant.

The skimmed whey then has water removed from it using a reverse osmosis membrane unit. This equipment can process 200,000 pounds per hour. The whey solids are concentrated from 7% to 11% by this removal of water. The water removed from the whey (permeate) is polished by another reverse osmosis membrane system. This polished water is collected to be used as processing water in the plant. The 11% concentrated whey solids are pumped to one of three 30,000 gallon storage tanks.

The whey from the storage tanks is further concentrated in an evaporator. The evaporator is capable of processing 150,000 pounds per hour of whey or skim milk to 30,000 pounds of 50% solids. Water, condensed as the other 120,000 pounds, is utilized along with permeate from the whey as processing water in the plant. The evaporator is washed daily with caustic and acid solutions that are collected and reused 1-2 weeks at a time.

The 50% solids whey or skim milk is then dried in a belt dryer using natural gas as a heat source. The dryer is washed weekly with caustic and acid solutions, which are discharged to the Port's sewer. The powder plant recycles post-rinses to be used as pre-rinses, similar to the practice at the cheese plant.

In an October 26, 2004 letter to the Department, WestFarm Foods included for clarification to the previous application for the NPDES permit the following more specific list of wastewater discharges:

- a. Milk process cleaning that results from cleaning of equipment prior to cheese making process;
- b. Membrane filtration cleaning resulting from cleaning of both milk and whey membrane filtration equipment;
- c. Milk and milk products; cheese; whey and whey products (these are actual products that leak or are spilled);
- d. Process water from a variety of sources, including among other, water from hoses; pump seal water; line rinsing; etc.;
- e. Cooling tower and boiler blowdown;
- f. Water polisher concentrate from reverse osmosis membrane treatment of cow water to render it usable as industrial potable water.

Discharge Outfalls

The facility utilizes three outfalls. The rationale for the discharge of cow water through Outfall #001 is to minimize the hydraulic load to the Port's IWWTF.

Outfall #001 is located 1/8 mile west of the facility, where effluent is discharged to Joint Drain 33.4 (JD33.4). This is an irrigation return drain. The drain is operated by the Roza-Sunnyside Board of Joint Control. JD 33.4 is referred to as DID #3 in the existing permit. Construction

took place in August 2001 to cover Joint Drain 33.4 for a linear distance of 4,500 feet, south of the City of Sunnyside. The covered section includes the location of Outfall #001.

Effluent to Outfall #002 is routed through a weir box with a flow measurement device and a composite sampler, prior to being piped one mile south to the Port of Sunnyside IWWTF.

Outfall #003 is designated for all discharges not routed to Outfall 001 and 002. In an October 26, 2004 letter to the Department, WFF included an Attachment C4 to the permit application, which contained a list of possible uses and discharge options for the salty wastewater derived from salty whey. It requested these options be authorized in the renewed permit:

1. Discharge to Port of Sunnyside Sequencing Batch Reactor for treatment.
2. Discharge to POTW.
3. Use by chemical company for making sodium hypochlorite.
4. Use by feed company as feed supplement.
5. Unpaved road dust control.
6. Paved road ice control.
7. Landfill disposal.

The proposed permit authorizes the discharge of this salty water through Outfall 003, at a location to be stated in the O&M Manual's Appendix B.

PERMIT STATUS

The existing permit for this facility was issued on September 4, 1997, with an expiration date of October 1, 2002. An administrative extension for this permit was issued on September 30, 2002, effective October 1, 2002, and remains in effect until the permit is reissued. The existing permit placed effluent limitations on pH, flow, and temperature, for the discharge to Joint Drain 33.4.

The 1997 permit stipulated that contractual limits for the discharge to the Port's IWWTF were in effect. These limited parameters, which include BOD, TKN, and flow, are stated in the Port of Sunnyside Industrial Wastewater Treatment Facility User Contract, Schedule A. This contract can be re-negotiated, if the need arises and the Port has available capacity. The latest revision to the contract's Schedule A was signed January 1, 2005.

An application for renewal of the NPDES permit was received by the Department on April 3, 2002 and accepted by the Department on September 27, 2002. In September 2004, while this proposed permit was being drafted, the Department discovered the WFF's contractor had discharged the salt-water on agricultural roads in Southern Washington as a dust suppressant. This discharge ended immediately after the Department became aware of the practice and notified the company to end this practice. Additionally, this process wastewater discharge location was not specified in the 2002 NPDES application. As a result, the Department required that a new application be submitted.

The new application, containing details of the discharge of salty wastewater to King County, was submitted on February 2, 2005, and accepted March 1, 2005.

The Permittee's 2005 application noted a planned, but unscheduled increase in production at some point in the future. The plant currently processes an average of 4,500,000 lbs. of raw milk a day. WestFarm Foods is proposing an increase in daily production to accommodate 6,000,000 lbs. lbs raw milk. The permit's General Condition - G4. - Reporting Planned Changes requires that the Permittee notify the Department of significant production increases, a minimum of 60-days prior to any proposed change. G4 also requires the submittal of a new or updated application and engineering report, if the planned increase in production would result in discharges in excess of the permit limits. The permit's General Condition - G21. - Reporting Anticipated Non-Compliance requires that the Permittee notify the Department at least 180-days prior to commencement of any discharges due to facility expansions or production increases that may result in noncompliance with permit limits or conditions.

SUMMARY OF COMPLIANCE WITH THE EXISTING PERMIT

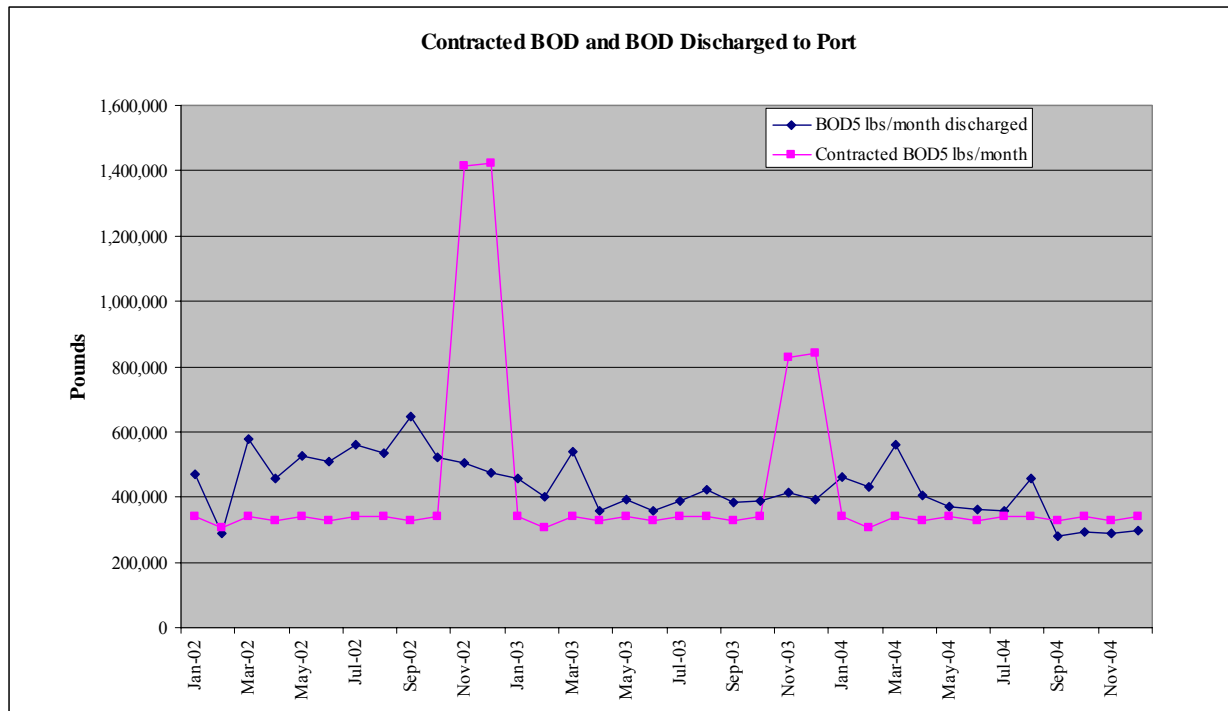
The facility last received an inspection on September 28, 2003. The purpose of the inspection was to inform the Permittee of the permit issuance procedure and inform the permit writer about the details of the facility in preparation for writing the permit.

During the history of the existing permit, the Permittee has not consistently remained in compliance with discharge limits in the existing permit based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted for the discharges through Outfall #001 and Outfall #002.

Compliance with Contract Provisions: Discharge to the Port of Sunnyside IWWTF

The Permittee has exceeded contractual allocations and therefore permit limits for the discharge through Outfall #002 to the Port of Sunnyside Industrial Wastewater Treatment Plant. From January 2002 through December 2004, WestFarm Foods exceeded BOD5 limits 27 of the 36 months.

The following graph illustrates the exceedances:

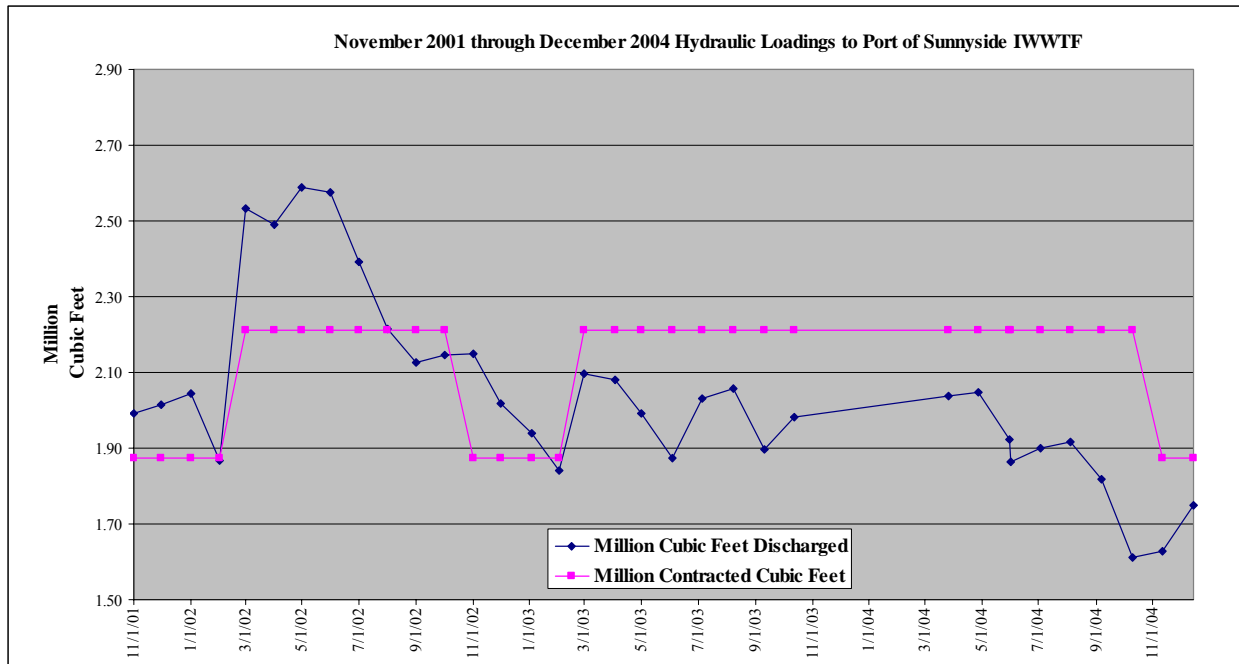


WestFarm Foods' User Contract with the Port of Sunnyside IWWTF includes a provision that the monthly contracted hydraulic loadings for the four consecutive months of November through February may be exceeded as long as the total discharge does not exceed 7,500,000 cubic feet (56,000,000 gallons). This contract provision was exceeded for the November 2001 to February 2002 period, as well as the November 2002 to February 2003 period.

A Notice Of Violation No. DE 03WQCR-5468 was issued by the Department on April 14, 2003 for exceeding contracted hydraulic volumes to the Port's IWWTF for the following months: November 2002, December 2002, January 2003, and February 2003. The contracted volume for this period, which constitutes the permit limits in the existing permit's S1.C was 7,500,000 cubic feet. WestFarm Foods discharged 7,960,300 cubic feet, and this was the basis of the NOV.

In response to the above NOV, WestFarm Foods installed a new pump and control valve to better regulate flow to Outfall #002. They also hired a consultant to train employees in water use reduction.

The following graph illustrates the hydraulic exceedances to the Port's IWWTF:



The graph also illustrates that WFF has been in compliance with the hydraulic loading limitations since February 2003.

Compliance with Discharge Limits for Outfall #001 to Joint Drain 33.4

Water quality monitoring personnel from the Roza-Sunnyside Board of Joint Control noticed a “vast amount” of an unknown material in JD 33.4 on September 30, 2002, and notified the Department. They stated the water was “rife with an animal tissue-like substance”. The Department’s personnel visited the site, investigated the substance, and determined it to be *Sphaerotilus* bacteria. In addition to the bacteria, they noted the occurrence of a “stringy-oily milk-fat” substance in the drain, downstream from WestFarm Foods Outfall #001, but noticed no such substances upstream from the outfall. As a result of the inspection, the WestFarm Foods discharge was determined to be the cause of the pollutant and the following Notice Of Violation (NOV) was issued:

Notice Of Violation No. DE 02WQCR-5065 was issued December 2, 2002 for an un-authorized discharge of raw milk to Joint Drain 33.4. The discharge was due to a crack in a raw milk storage silo near the bottom outlet valve, which resulted in milk leaking into a storm sewer that emptied into Joint Drain 33.4. The leak had gone undetected for at least one week, until it was discovered and reported by WestFarm Foods personnel on October 2, 2002. This discharge was a violation of Chapter 90.48.080 RCW and NPDES permit condition S1.A.

In response to this violation, WestFarm Foods implemented a daily Silo Pad Drainage Inspection Log, where each day the silos are inspected for leakage and the inspection data is documented.

The existing permit has a maximum daily flow limit of 400,000 gallons through Outfall #001. This limit was exceeded three times from July 2002 through December 2004.

Compliance with General Terms of Permit issued in 1997

From the inception of operation of the cheese plant in 1995 to 2001, salty water permeates from the draining cheese curds had been discharged to the Port's IWWTF. During the same time frame, the Port's land treatment sprayfield became overloaded with total dissolved solids (TDS), violating the Port's discharge permit with the Department. A significant portion of the Port's TDS loading was due to discharges from WFF.

From April 2001 to August 2003, WFF trucked the salt water permeates to King County's Wastewater Treatment System, after receiving approval and permits from the King County Industrial Waste Program (KCIWP). Then in 2003, after a legal agreement detailed below was signed, WestFarm Foods halted trucking salty wastewater to King County.

Between August 29, 2003 and July 29, 2004, WestFarm Foods allowed the use of the salty water permeates as a dust suppressant on a farm belonging to Courtney Calaway, in Grant County. The company estimated that approximately 3,890,000 gallons were utilized for this purpose. The Company had entered into a contract with Mr. Calaway for the hauling and disposal of the material and had required Calaway to comply with environmental laws.

The Department learned of this practice and notified WestFarm that this was not an authorized discharge. The company was cooperative and immediately discontinued the practice. The Department issued notice of violation DE 04WQCR-1802 to WestFarm on the basis that the discharge posed a substantial potential to violate RCW 90.48.080 and that a permit would be required for this activity.

WestFarm Foods submitted a timely report in response to the notice of violation as required. In its report, the company disagreed with Ecology's determination that the discharge was its responsibility, by virtue of the contract with Calaway, and that the discharge did not violate RCW 90.48.080.

The Department has not pursued further enforcement for this activity and has determined that the most appropriate and effective way to address the treatment and disposal of the salty water permeates is through this permit.

WASTEWATER CHARACTERIZATION

Outfall #001 Wastewater Characterization

The Permittee's NPDES application reports that the Outfall #001 is composed of the following wastewater streams with their attendant volumes:

Table 2: Outfall #001 Wastewater Volumes

Operation	Normal Day Average GPD Flow	Maximum Day Average GPD Flow ^a	Description
Evaporator #1& 2 water; Whey reverse osmosis water ^b	84,000	459,000	Distillation & Ultra-filtration
Non-contact cooling water	72,000	72,000	Cooling water
^a Maximum flows from all individual wastewater operations have not occurred on same day.			
^b These terms are collectively referred to as "cow water" in the industrial process description section above.			

The maximum day average flow rates given in the Table above occur when the filtered and reverse osmosis process water is out of specification for use as cleaning water.

In addition to the wastewater streams detailed in Table 2, the Permittee discharges stormwater through Outfall #001, which is regulated by the Industrial Stormwater Permit # SO3-000567.

The Permittee's wastewater discharge through Outfall #001 is characterized in the table below from Discharge Monitoring Reports submitted for the period February, 2002 through December, 2004.

Table 3: Outfall #001 Wastewater Characterization February 2002 -- December 2004

As Reported on the Discharge Monitoring Reports				
Parameter	Units	Minimum	Maximum	Average
Flow	GPD	0	487,920	101,415
pH	S.U.	6.3	8.8	7.3
Temperature	° C	7.8	28.9	17.0
BOD ₅	mg/L	2.0	96.0	28.9
NH ₃ (as N)	mg/L	0.2	17.0	3.8

Total Suspended Solids (TSS) was not required to be monitored in the existing permit. However, the Permittee did provide an analysis for this parameter with its permit application which was submitted April 8, 2002. A concentration of < 2 mg/L was reported.

Outfall #002 Wastewater Characterization

The Permittee's wastewater discharge to Outfall #002 is characterized from Discharge Monitoring Reports submitted for the period, January 2002 through December 2004.

Table 4: Outfall #002 Wastewater Characterization
As Reported on the Discharge Monitoring Reports

Parameter	Units	Minimum	Maximum	Average
Flow	GPD	NA	639,300	495,442
pH	S.U.	4.2	12.1	9.8
Chemical Oxygen Demand	lbs/month	501,284	1,222,327	814,776
Biological Oxygen Demand	lbs/month	281,115	644,975	431,130
Total Suspended Solids	lbs/month	46,145	192,812	92,174
Nitrate	lbs/month	2,919	16,647	8,260
TKN	lbs/month	14,982	35,717	21,338
Phosphorus	lbs/month	3,362	18,679	9,397
Chloride	lbs/month	18,302	118,107	53,254
Total Dissolved Solids	lbs/month	287,112	861,653	546,059
Fixed Dissolved Solids	lbs/month	142,336	555,094	254,023

Outfall #003 Salt Permeate Wastewater Characterization

Table 5: Outfall #003 Wastewater Characterization

Parameter	Units	2001 Grab Sample ^a	2004 Grab Sample ^b
Flow	GPD	15,700	No data listed
pH	S.U.	5.2-5.5	4.9 -5.6
Total Dissolved Solids	mg/L	49,370	60,076
Chloride	mg/L	30,930	34,259
Sodium	mg/L	9,043	5,360
Chemical Oxygen Demand	mg/L	6,300	6,800
Biological Oxygen Demand	mg/L	3,100	3,700
Total Suspended Solids	mg/L	64	140
TKN	mg/L	N.A.	155
Conductivity	ms/cm	75.5	90.0
Temperature	° F	125	N.A.
^a As reported in March 8, 2001 letter from WestFarm Foods to King County Industrial Waste Program.			
^b As reported August 12, 2004 from Storage Silo #60 analysis.			

SEPA COMPLIANCE

A mitigated determination of non-significance (MDNS) was issued by the City of Sunnyside for a proposal to expand the WestFarm Food facility. The SEPA file # for this project is #99-358. The proposal was for an expansion to the building for a new whey evaporator and boiler. The MDNS was issued February 1, 2001.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC).

Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two

limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis.

The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Outfall #001 Discharge of Process Wastewater

Federal effluent guidelines for BOD₅, TSS, and pH exist for this discharge in 40 CFR 405, the Dairy Products Processing Point Source Category. Applicable subparts within this section which apply to the Permittee's discharge include: Subpart I-Condensed Milk Subcategory, Subpart J-Dry Milk Subcategory, Subpart K-Condensed Whey Subcategory and, Subpart L-Dry Whey Subcategory.

The federal effluent guideline mass limits for BOD₅ and TSS will not be employed in this permit because the State Water Quality criteria are more stringent. Appendix C – Technical Calculations of this fact sheet presents the calculations of the Federal effluent limits for the BOD₅ in this discharge.

The existing permit did not require monitoring of TSS. The industrial processes that create this wastewater stream (reverse osmosis, evaporation condensate, and non-contact cooling water) remove a large proportion of the suspended solids. Monitoring of Turbidity (in units of Nephelometric Turbidity Units or NTUs) is required in the proposed permit in order to show that the industrial processes consistently provide effluent with low suspended solids concentrations over time. Monitoring for Turbidity rather than TSS is warranted since this is a less expensive analysis. NTUs and TSS are highly correlated.

The existing permit's temperature limit (79 ° F or 26.1 °C) for the discharge to JD33.4 can be regarded as a performance-based limit. A cooling tower was installed in 1997 to cool the cow

water prior to discharge to JD33.4. In a September 23, 1996 letter to the Department, the Permittee stated that cooling tower technology could be expected to consistently cool warm discharge streams to 78 ° F. This temperature was adopted according to calculations presented by the Permittee and derived from weather data and cooling tower performance in the 1993 ASHRAE Fundamentals Handbook. (ASHRAE is an acronym for the American Society of Heating and Ventilating Engineers.)

While the cooling tower lowers the temperature of the cow water effluent, the effluent's temperature still exceeds State water quality standards. AKART for cooling the effluent at locations prior to passing through the cooling tower has not been established. A letter from the Department to the Permittee, dated December 20, 2000, recommended the submittal of an Engineering Report that would explore options for cooling the cow water, other than only cooling tower technology. The recommendation for an Engineering Report was not a permit requirement, and a report was never received by the Department.

The proposed permit retains the existing permit's maximum daily temperature limit of 26.1 °C on an interim basis. The proposed permit establishes a final temperature limit of 18.3 °C, six months prior to permit expiration. The interim limit is necessary in order for the Permittee to implement the proposed Compliance Schedule (S6), which is required to address the temperature of this effluent. More details about the water quality-based temperature limitations for this discharge are presented later in this fact sheet.

The permit limits the effluent's pH to a minimum of 6 S.U. and a maximum of 9 S.U, which is the range given in 40 CFR 405.

The Permittee has reported an average ammonia concentration of 3.8 mg/L and a maximum of 17.0 mg/L on its Discharge Monitoring Reports from February 2002 through December 2004. This concentration has the potential to violate State Water Quality Standards.

The permit includes a Compliance Schedule with a Engineering Report (S6) that is to establish AKART for this discharge. The Engineering Report is required to consider technology based solutions for complying with the State Water Quality-based Criteria, which include, but are not limited to, temperature, dissolved oxygen, and ammonia. More information on the water quality-based criteria is given later in this fact sheet.

Outfall #003 Discharge of Process Wastewater

Outfall 003 is the designated discharge location for those wastewaters and process waters not routed to Outfall 001 and Outfall 002.

Any discharge of wastewater or process water not authorized by the Department for discharge through Outfall 001 or Outfall 002 is prohibited, unless otherwise approved by the Department for discharge through Outfall 003.

As of July 2004, WFF has been permitted and authorized to dispose of salty permeate wastewater to King County's Wastewater Treatment System. King County has issued two Waste Discharge Permits for this wastewater discharge. The Department requires discharge of this wastewater stream be accounted for by reference in Appendix B of its O&M Manual. The Department requires notification of any change to the location and/or nature of this wastewater stream. The permit requires WestFarm Foods to submit any proposed revisions to Appendix B of the O&M Manual for approval prior to implementation.

Permits issued to WestFarm Foods by the King County Wastewater Treatment Division - Industrial Waste Program regulate the discharges of salty permeate water from cheese processing to WFF's Issaquah and Seattle plants. The County issued Permit No. 7075-02 on May 1, 2003 with an effective date of May 8, 2003 for the discharge to WFF's Issaquah plant. The County issued Permit No. 7116-03 on February 10, 2004 with an effective date of February 27, 2004 for the discharge to WFF's Seattle plant. Both permits have a life-span of five years.

The proposed permit requires that WFF disclose to the Department the discharge location of this wastewater. The permit also requires that WFF disclose any terms, conditions, or contracts associated with this discharge. Copies of any permits or legal contracts for the discharge of the wastewater are required to be submitted to the Department before the effective legal date of the agreement. Therefore, if the location of the wastewater discharge site changes from King County Wastewater Treatment Facilities to a private contractor, notification to the Department is required. Furthermore, discharge of the salty wastewater to any location with the potential to reach surface or groundwater, requires Department's approval and may require a permit modification.

The Department may require WestFarm Foods to provide an Engineering Report prior to the discharge of any process water and/or wastewater that discharges to surface water or groundwater. An Engineering Report may also be required for any discharges that have the potential to enter surface water and/or groundwater. The Report is required to provide details about how the State's water quality would be protected with this discharge.

EFFLUENT LIMITS BASED ON LOCAL LIMITS

Outfall #002 Discharge to Port of Sunnyside Industrial Wastewater Treatment Plant

This discharge is regulated by a contract between WestFarm Foods and the Port of Sunnyside. Effluent limitations in this permit will reflect those in the current contract. Because limits in the Port contract are likely to change during the period this permit is effective, the proposed permit will reference an Appendix A in the Permittee's O&M Manual that contains the current contract limits.

The pretreatment subparts within the 40CFR 405 Dairy Products Processing Point Source Category do not limit the pH of this discharge. WAC 173-216-060 does limit the pH to a range of 5.0 to 11.0, unless the system is specifically designed to accommodate this range. The effluent from the facility is discharged from the outfall to a PVC pipe which can withstand high pH. Therefore, the local limits provided by the Port's user contract apply to this parameter, which are no discharges with a pH outside the range of 5.0 to 12.45.

High or low pH values and rapid swings in pH can be detrimental to biological wastewater treatment processes. The effluent discharged to the Port IWWTF receives no pH neutralization. This effluent is quite basic, and has exhibited an average of 9.8 and a daily maximum of 12.1 during for the period of July 2002 through December 2004. The effluent's high pH is mitigated by the fact that effluent discharged by other industries to the Port's IWWTF tends to be acidic, effectively neutralizing WestFarm Foods effluent. Furthermore, the Port's wastewater discharges to its sprayfields in past years have had high loadings of fixed dissolved solids (FDS).

Any attempts at neutralizing the various effluents' pH from the industries would likely exacerbate the problem by adding extra anions to the FDS load already present in this discharge to the sprayfields.

**Table 6: Current Contract Loading Limits to the Port of Sunnyside IWWTF
(Dated January 1, 2005)**

	Hydraulic Discharge		Biological Oxygen Demand	Total Kjeldahl Nitrogen
	Contracted Cubic Feet	Peak Cubic Feet	Monthly Total Pounds	
January	1,875,000	*	416,158	25,000
February	1,875,000	*	375,922	25,000
March	2,212,500	3,318,750	416,158	25,000
April	2,212,500	3,318,750	402,743	25,000
May	2,212,500	3,318,750	416,158	25,000
June	2,212,500	3,318,750	402,743	25,000
July	2,212,500	3,318,750	416,158	25,000
August	2,212,500	3,318,750	416,158	25,000
September	2,212,500	3,318,750	402,743	25,000
October	2,212,500	2,212,500	416,158	25,000
November	1,875,000	*	402,743	25,000
December	1,875,000	*	416,158	25,000
Annual Total	25,200,000		4,900,000	300,000
* The industry may exceed the monthly contracted volumes so long as the total discharge for the four consecutive months (*) of November through February is not in excess of 7,500,000 cubic feet.				

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a State regulation designed to protect the beneficial uses of the surface waters of the State. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the waste water and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

The Yakima River Turbidity TMDL report (Washington State Dept. of Ecology, 1997) establishes the following target which applies to JD33.4, since it is a tributary of the Yakima River:

Fisheries (aquatic biota) support – Using narrative criteria to protect aquatic life, a 25 NTU turbidity or 56 mg/L TSS target will apply to irrigation return drains and tributaries as a fish health threshold consistent with the scientific literature.

Although it is suspected that the facility's cow water discharge has low suspended solids concentrations, monitoring for this parameter has not been routinely conducted. Therefore, the permit requires monitoring of the effluent's Turbidity to determine if the industrial processes consistently provide acceptable concentrations of suspended solids in the wastewater.

Antidegradation

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the waterbody. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

RS-BOJC personnel have conducted some water quality monitoring on the waterbody. However, these data were not collected during critical conditions and the locations of the monitoring sites were not close to the site of Outfall #001. Therefore, integral to the Engineering Report (S6), the new permit requires that the Permittee conduct a receiving water study to determine if JD 33.4 water quality is higher or lower than the designated classification, at the site of the outfall. (An exception to this requirement is if the Scope of Work (S6.A) does not identify JD 33.4 as an alternative discharge location to be examined for the Engineering Report.) Another rationale for this requirement is to aid in determining if the effluent has reasonable potential to exceed existing water quality standards; therefore, for the upcoming permit cycle, the Department will use the designated classification criteria for this waterbody in the proposed permit. The discharges authorized by this permit should not cause a loss of beneficial uses.

Critical Conditions

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses. A primary critical condition for this waterbody is temperature. The lower Yakima River, of which this JD 33.4 is a tributary, is on the State's 303d list for temperature. This discharge may receive a wasteload allocation for temperature, should a TMDL assessment be completed for this parameter.

Description of the Receiving Water

Joint Drain 33.4, at this location, is contained in a concrete pipe, 8½ feet in diameter. JD 33.4 is administered and operated by the Roza-Sunnyside Board of Joint Control for the purposes of routing irrigation return water. JD 33.4 is referred to as DID #3 in the existing permit. JD 33.4 is a tributary of Sulphur Creek, which in turn is a tributary of the Yakima River. The lower Yakima River is on the State's most recent 303d list for impaired water bodies. Sampling has revealed excursions beyond the State's water quality criteria for Temperature, Dissolved Oxygen, and pH.

A Total Maximum Daily Load study (TMDL) for these parameters may be conducted in the future. At the conclusion of these studies, a waste load allocation may be developed for point source dischargers to the lower Yakima River and its tributaries.

JD 33.4 is designated as a Class A receiving water by default, pursuant to WAC 173-201A-120(6), since it has not received specific designation in WAC 173-201A-130. Other nearby point source outfalls include the City of Sunnyside, which discharges to JD 33.4 approximately ¾ mile upstream from the WestFarm Foods discharge. Significant nearby non-point sources of pollutants include runoff from agricultural fields (particularly since JD 33.4 is an irrigated agricultural return drain). Characteristic uses for Class A waters include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

Water quality monitoring was conducted by Roza-Sunnyside Board of Joint Control personnel from April 2000 through August 2001, at a location approximately 5,000 linear feet downstream of the outfall. At this location, the drain is an open canal. The receiving water's warm-season temperature has been calculated to be 18.6 °C (95th percentile). However, the water temperature was grab-sampled during the morning hours (generally between 9 and 10 a.m.), not during the critical, hottest time of the day. The receiving water flow for the same warm-season flow rate was 19.6 cfs (5th percentile).

Mixing Zones

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable

methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

Mixing zones can only be authorized when the background ambient water quality meets or is better than State water quality standards. It is very likely that the receiving water's ambient conditions do not meet these standards; therefore, the proposed permit does not authorize mixing zones. If, however, the Permittee conducts an AKART analysis and conducts a mixing zone study, then it may apply for a mixing zone.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Table 7: Applicable Water Quality Criteria

Parameter	Criteria
Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

Consideration Of Surface Water Quality-Based Limits For Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

Since the 1997 permit was written, the JD 33.4 drain was replaced with an 8 ½ foot diameter pipe for a linear distance of 4,500 feet at the vicinity of the facility's outfall. Although the proposed permit does not establish a mixing zone, a preliminary water quality analysis was done

utilizing flow data gathered by the RS-BOJC. However, these data do not adequately present flow data in the irrigation water return pipe at the location of Outfall #001. Therefore, the proposed permit requires a Scope of Work (S6) for the Engineering Report that is required to determine if a receiving water study shall be conducted. If an alternative is put forth in the Scope of Work that retains the discharge to JD33.4, a receiving water study is required in order to determine the impact of the effluent's BOD₅, Temperature, pH, Turbidity and, Toxic Pollutants on receiving water quality. Upon review and approval of the Engineering Report (with attendant mixing zone modeling), the Permittee may request a mixing zone.

BOD₅ -- The average BOD₅ concentration in the discharge to JD 33.4 for the previous two years was 34.1 mg/L. Elevated loadings of BOD have an impact on dissolved oxygen concentrations in water bodies. The lower Yakima River is on the State's 2002 – 2004 (and 1998) 303d list for dissolved oxygen. A TMDL may be developed for this parameter in the future, and waste load allocations issued for point source discharges on the lower Yakima River and its tributaries. The existing permit requires monthly grab sampling for the BOD₅ parameter. The proposed permit requires weekly composite sampling for this parameter in order to better determine the impact on surface water quality.

The proposed permit requires the submittal of an Engineering Report, in accordance with the Compliance Schedule (S6), which is required to propose methodologies (AKART) to insure that the discharge meets applicable surface water quality standards.

Temperature --The impact of temperature on JD 33.4 was not modeled, due to the lack of receiving water data. The temperature of the discharge through Outfall #001 exceeded 18 °C, the criteria for Class A waters, on 52 out 129 sampling events between February 2002 and December 2004.

JD 33.4's confluence with Sulphur Creek is approximately 2 miles downstream from Outfall #001. Both Sulphur Creek and the lower Yakima River are on the 1998 303d list for temperature impairment. A Total Maximum Daily Load assessment is scheduled to be conducted on these water bodies before the year 2013. At that time, temperature load allocations may be issued to point source wastewater dischargers to Sulphur Creek and associated tributaries.

The proposed permit requires the submittal of an Engineering Report contingent with the Compliance Schedule (S6) that is required to propose methodologies (AKART) to insure that the discharge, to the extent possible, does not cause temperatures in the receiving water to exceed the criteria given in WAC 201A-030 for this water body.

The proposed permit requires that if the Scope of Work (S6) sets forth an alternative for discharge to JD33.4, a Receiving Water Study is required to be conducted concurrently with the development of the Engineering Report. This requirement is necessary to better determine the discharge's effect on temperature in JD 33.4.

pH --The impact of pH was evaluated based on the range of pH in the effluent and pH of the receiving water. Weekly grab sampling of the effluent's pH routed through Outfall #001 has not recorded exceedances of State Water Quality criteria in the 2002 to 2004 timeframe. The permit requires that pH be metered continuously, so as to better characterize the variability of the discharge.

Turbidity -- Due to the potential fluctuations in turbidity of the receiving water and the effluent, turbidity monitoring is required to assess compliance with the water quality criteria for turbidity. The criterion for turbidity allows no more than a 5 NTU increase over background turbidity.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The Permittee's discharge through Outfall #001 has potentially harmful concentrations of ammonia. A reasonable potential analysis was not conducted on this parameter to determine whether or not effluent limitations would be required in this permit because of the lack of receiving water data such as flow rate, ammonia concentration, temperature, and pH. If the Scope of Work (S6) recommends continued discharge to JD 33.4 be examined in the Engineering Report, the Permittee is required to do a receiving water study to collect background data near the point of discharge.

A significant proportion of this effluent consists of non-contact cooling water. WestFarm Foods has informed the Department that it does not add chemicals to non-contact cooling water to prevent fouling of the cooling pipes. As such, the proposed permit does not require monitoring for anti-fouling chemicals.

The Permittee is required to prepare an Engineering Report (S6) which will determine AKART for limiting pollutants in the effluent. This information may result in a permit modification or limits in the next renewal.

Whole Effluent Toxicity

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to contain toxic chemicals. The proposed permit would ordinarily contain requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. However, the Permittee is improving pollution control in order to meet other regulatory requirements. The results of an effluent characterization for toxicity would not be accurate until after the improvements have been completed.

Special Condition S6 requires an Engineering Report that will determine AKART for this effluent. This effectively delays effluent characterization for WET until the next permit is issued. WAC 173-205-030(4) allows the Department to delay effluent characterization for WET for existing facilities that are under a compliance schedule in a permit to implement technology-based controls or to achieve compliance with surface water quality-based effluent limits.

Human Health

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the State by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

Sediment Quality

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground; therefore, no limitations are required based on potential effects to ground water. However, if the Engineering Report (S6.C) recommends that the effluent discharged through Outfall #001 be discharged to ground through the Port's IWWTF, all pretreatment standards must be met. The Engineering Report is also required to consider

AKART for the discharge through Outfall #002 to the IWWTF. This effluent contributes a significant percentage of the loadings to the Port's wastewater treatment sprayfields, which have been overloaded with Total Dissolved Solids.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED SEPTEMBER, 1997

Table 8: Outfall # 001 – Existing and Proposed Limits

	Existing Limits		Proposed Limits	
Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Flow	200,000 GPD	400,000 GPD	250,000 GPD	550,000 GPD
Temperature	N.A.	26.1 °C	N.A.	26.1 °C / 18.3 °C ^a
pH	Daily minimum ≥ 6.0 Daily maximum ≤ 9.0		Daily minimum ≥ 6.0 Daily maximum ≤ 9.0	
^a 18.3 °C is the final maximum daily temperature limit to take effective 6 months prior to permit expiration.				

Table 9: Outfall # 002 – Existing and Proposed Final Limits

Parameter	Existing Limits	Proposed Final Limits
pH	Daily minimum ≥ 5.0 Daily maximum ≤ 12.45	Daily minimum ≥ 5.0 Daily maximum ≤ 12.45

The contractual limits for the facility's discharge through Outfall #002 are revised almost annually and therefore are not presented in this section (they are presented in Table 6). These contractual limits include the following parameters: Flow, BOD₅, and TKN. The Engineering Report (S6) may propose the revision of the contractual limits.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The proposed permit requires both increased monitoring frequency and monitoring of more parameters than the existing permit, at Outfall #001. The current permit requires a calculation to determine Flow rate, and grab sampling for Temperature, pH, and BOD₅. The increased monitoring effort is particularly relevant when considering the collective impact of all industry

and municipal wastewater discharges to JD 33.4. The permit makes allowance for a possible reduction in monitoring after one year (S2.E). The permit also makes allowance for a six-month compliance schedule from the effective date of the permit in order to implement the increased monitoring. The extra time allows the Permittee to investigate and obtain the necessary instrumentation to implement continuous sampling for flow, temperature, and pH. The compliance schedule also allows the Permittee to obtain and set-up composite sampling equipment for the conventional pollutants. Table 10 below presents the parameters to be monitored and the rationale for the monitoring.

Table 10: Monitoring Rationale for Outfall #001

Parameter	Minimum Sampling Frequency / Type	Rationale for Monitoring
Flow (GPD)	Continuous / Metered	Continuous-metered flow sampling is required provide accurate data in order to assure compliance with water quality standards.
Average & Maximum Daily Temperature	Continuous / Datalogger/recorder	Lower Yakima River is temperature 303d listed. Increased monitoring frequency required to capture variability of discharge.
pH	Continuous	Increased monitoring frequency required to capture variability of discharge and to verify compliance with the State's Water Quality Standards. The Lower Yakima River is 303d listed for pH.
Dissolved Oxygen (mg/L)	1/week - Grab	Monitoring of this parameter is necessary to determine its character and possible impacts on Class A waterbody. The Lower Yakima River is 303d listed for Dissolved Oxygen.
BOD ₅ (mg/L & lbs/day)	1/week - Composite	Increased monitoring frequency required to capture variability of discharge. The lower Yakima River is on the 303d list for dissolved oxygen. Monitoring of these parameters is necessary to determine its impacts on Class A waterbody.
Ammonia (mg/L & lbs/day)	1/week - Composite	Monitoring of this toxic parameter is needed to ascertain effect on aquatic life in this Class A waterbody.

Parameter	Minimum Sampling Frequency / Type	Rationale for Monitoring
Total Nitrogen	1/week - Composite	Monitoring of Total Nitrogen is required to determine its impacts on Class A waterbody. Since the Lower Yakima River is 303d listed for pH, these nutrients boost aquatic plant growth, which may raise pH.
Total Phosphorus	1/week - Composite	Monitoring of Total Phosphorus is required to determine its impacts on Class A waterbody. Since the Lower Yakima River is 303d listed for pH, these nutrients boost aquatic plant growth, which may raise pH.
Chloride (mg/L & lbs/day)	1/week - Composite	Monitoring of this parameter is necessary to determine its character and possible impacts on Class A waterbody.
Alkalinity (mg/L)	1/month - Grab	Monitoring is required to determine its impact of this parameter on Class A waterbody. Alkalinity acts as a buffer to resist a drop in pH. The Lower Yakima River is 303d listed for pH.
Turbidity	1/week - Grab	Monitoring of this parameter is necessary to determine its character and possible impacts on a Class A waterbody.

LAB ACCREDITATION

With the exception of certain parameters the proposed permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S4. as authorized under Chapter 173-240-150 WAC and Chapter 173-216-110 WAC. It is included to ensure proper operation and regular maintenance of any wastewater related equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The proposed permit requires submission of an updated O&M manual for the entire wastewater system.

The O&M Manual is also required to contain an Appendix A which contains the User Contract and Schedule A for the discharge of effluent through Outfall 002 to the Port of Sunnyside.

The O&M Manual is also required to contain an Appendix B, which documents the discharge of process wastewater and or process water designated as the discharge to Outfall 003. As of the date the draft permit and fact sheet was written, this wastewater was being trucked to WestFarm Food's plants in King County for discharge to King County's Industrial Wastewater Treatment System. The Permittee has requested these options for the discharge of the salty be authorized in the renewed permit:

1. Discharge to Port of Sunnyside Sequencing Batch Reactor for treatment.
2. Discharge to POTW
3. Use by chemical company for making sodium hypochlorite
4. Use by feed company as feed supplement
5. Use by feed lot or livestock farm as an animal feed supplement
6. Unpaved road dust control.
7. Paved road ice control.
8. Landfill disposal.

The Permittee is required to notify the Department of any change to the approved discharge location 60-days in advance (S1.C) and update the O&M Manual's Appendix B (S4.B.2). Based on the proposed new discharge location, the Department may require the submittal of an Engineering Report that illustrates protection of the State's Water Quality Standards.

Appendix C of the manual is required to be the Spill And Slug Discharge Prevention And Control Plan detailed below.

REPORTING AND RECORDKEEPING

The provisions of Special Condition S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

SPILL AND SLUG DISCHARGE PREVENTION AND CONTROL PLAN

The Department has determined that the Permittee stores a quantity of chemicals, process water, and products that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to State waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department. The permit also requires the plan to be Appendix C of the O&M Manual.

COMPLIANCE SCHEDULE WITH ENGINEERING REPORT

The permit establishes a compliance schedule for the Permittee to comply with State Water Quality Standards and Federal Pretreatment Standards.

An engineering report that develops AKART for the facility's effluent discharges to the Port of Sunnyside IWWTF and JD 33.4 is an integral part of the compliance schedule. The goal is compliance with the Surface Water Quality Standards and Federal Pretreatment Standards. The engineering report is required to develop a plan for all reasonable and feasible pollution prevention opportunities for the discharge through the Outfalls. Best Management Practices to prevent pollution are required to be delineated. In addition, the Engineering Report is required to assess measures to reduce or eliminate the discharge of pollutants that pass through the IWWTF and that may degrade surface or Ground Water Quality. If the Permittee continues its permitted discharge of salty permeate to King County's Industrial Wastewater Treatment facility, an AKART analysis is not required for the Outfall 003 wastewater.

JD33.4 is a tributary of Sulphur Creek, which in turn is a tributary of the Yakima River. The Lower Yakima River is listed for dissolved oxygen, pH, and temperature. Both Sulphur Creek and the lower Yakima River are on the State's 303d list for temperature. The temperature of the effluent discharged through Outfall #001, to JD 33.4, frequently exceeds criteria for Class A waters. Oxygen concentrations in aquatic environments are directly correlated to the temperature of the water. High water temperatures can lower oxygen concentrations to levels which are potentially lethal to aquatic organisms. The engineering report is required to assess compliance with the Water Quality Standards. In the event dissolved oxygen in the discharge is

out of compliance, the Engineering Report is required to propose ways to achieve compliance with surface water quality standards.

The average ammonia concentration in the previous 2 years has been 4.6 mg/L while the 95th percentile concentration for the period was 9.4 mg/L. The engineering report is required to analyze the impacts of ammonia to this water body and propose ways to achieve compliance with the surface Water Quality Standards.

Cow water, non-contact cooling water, and stormwater are all routed through the wastewater sump vault just upstream from the cooling tower. Since the wastewater is sampled at this sump vault, the engineering report is also required to consider the impacts of the pollutants within the storm water and non-contact cooling water discharged through Outfall #001 to JD 33.4.

The Outfall #001 effluent's contribution to BOD5 loading to JD 33.4 is not insignificant. Therefore, the engineering report is required to analyze the impacts of BOD5 to this water body's oxygen concentration and propose ways to reduce the impacts should the Scope of Work determine continued discharge to the drain is the appropriate option.

A Sampling and Analysis Plan for a Receiving Water Study is required to be submitted to the Department if the Scope of Work delineates, as an alternative, a continued discharge to surface waters. The Permittee is required to sample and analyze the receiving water for the following parameters: flow rate, temperature, BOD5, Dissolved Oxygen, Total Nitrogen, Total Phosphorus, Hardness, pH, and Ammonia. The receiving water sampling location should be upstream from and outside the zone of influence of the effluent. This Plan is required to be submitted to the Department prior to the season of the critical condition in the receiving water. It is recommended that the Permittee consult with the Roza-Sunnyside Board of Joint Control prior to commencing the Receiving Water Study to coordinate sampling with the board. The results of the Receiving Water Study are required to be submitted in the final engineering report.

The engineering report is also required to address the impacts of the effluent discharged through Outfall #002 to the Port's IWWTF. The Port's IWWTF has contracts to accept wastewater from 17 separate facilities. The annual total hydraulic capacity under contract from these facilities is 54,650,000 cubic feet. WestFarm Foods portion of this hydraulic capacity is 25,200,000 cubic feet, which represents 45 percent of all the hydraulic capacity allocated. WestFarm Food's discharge has frequently exceeded the contracted allocations with the Port [see the graphs and discussion in Summary of Compliance with Existing Permit section of this fact sheet].

Maintaining soil salinity at desirable concentrations in the Port's sprayfields is a high priority. WestFarm Foods contribution of Total and Fixed Dissolved Solids to the sprayfields is significant. These substances are extremely difficult to treat utilizing conventional wastewater treatment technologies. As a result, they pass through the treatment train without being removed. Application of pollution prevention (P2) measures to industrial processes is the first

step that can be taken to reduce dissolved solids and chlorides in wastewater. The engineering report is required to address methods to reduce these pollutants in the effluent.

The table presented below illustrates WestFarm Food's significant contribution to the Port's influent:

Table 11: WestFarm Food's Contribution to the Port's IWWTF Influent Loading

Parameter	Port's Average Monthly Influent 2002 Loading	WestFarm Food's Average Monthly Loading to Port	WestFarm Food's Average Percentage Contribution to the Port's Loading
Flow MGD	1.098	0.4954	45
Nitrate (lbs)	10,082	8,260	82
Total Kjeldahl Nitrogen (lbs)	29,395	21,338	73
Total Phosphorus (lbs)	12,225	9,397	77
Chloride (lbs)	102,745	53,254	52
Fixed Dissolved Solids (lbs)	404,937	254,023	63

The Engineering Report should investigate the possibility of routing all wastewater discharged through Outfall 001 through Outfall 002, as per the suggestion given to WFF during the Department's September 2002 inspection. If this mode of operation was adopted, WestFarm Foods could be issued a State Waste Discharge permit, instead of a NPDES permit.

GENERAL CONDITIONS

General Conditions are based directly on State and Federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended State or Federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for 5 years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)
Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A -- PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department published a Public Notice of Application and Draft (PNOA/D) on June 9, 2005 in the Sunnyside Daily Sun News to inform the public that an application, draft permit and fact sheet were available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 509/457-7105, or by writing to the address listed above.

The permit and the fact sheet were written by Jim Leier.

APPENDIX B -- GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving waterbody.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a waterbody is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a waterbody can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface waterbody, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C -- TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>. The spreadsheet below presents the calculation of Federal Effluent Guidelines for this discharge, which have not been placed into this permit because they would not meet State Water Criteria.

RAW MILK LBS / DAY				3,904,110
3,904,110 lbs/ day Raw Milk	X 3.7% Fat in raw milk =		144,452 LBS / DAY FAT INPUT	
3,904,110 lbs/ day Raw Milk	X 3.5% Protein in raw milk =		124,932 LBS / DAY PROTEIN INPUT	
3,904,110 lbs/ day Raw Milk	X 4.9% Carbohydrate in raw milk =		195,205 LBS / DAY CARBS INPUT	
Factor *			BOD lbs INPUT/DAY	
FAT FACTOR	0.89	X Raw Milk lbs/day fat input =	128,562	
PROTEIN FACTOR	1.031	X Raw Milk lbs/day protein input =	128,804	
CARB FACTOR	0.691	X Raw Milk lbs/day carbohydrate input =	134,887	
*Factors utilized to derive BOD input are given in CFR405				392,254 TOTAL LBS BOD / INPUT DAY

CONDENSED WHEY LBS / DAY				493,151
493,151 lbs./day Condensed Whey	X 0.5 % Fat in Condensed Whey =		2,466 LBS / DAY FAT INPUT	
493,151 lbs./day Condensed Whey	X 5.5 % Protein in Condensed Whey =		27,123 LBS / DAY PROTEIN INPUT	
493,151 lbs./day Condensed Whey	X 30.1 % Carbohydrate in Condensed Whey =		148,438 LBS / DAY CARBS INPUT	
Factor *			BOD lbs INPUT/DAY	
FAT FACTOR	0.89	X Cond. Whey lbs/day fat input =	2,195	
PROTEIN FACTOR	1.031	X Cond. Whey lbs/day protein input =	27,964	
CARB FACTOR	0.691	X Cond. Whey lbs/day carbohydrate input =	102,571	
*Factors utilized to derive BOD input are given in CFR405				132,730 TOTAL LBS BOD / INPUT DAY

Dairy Products Processing Point Source Category FEDERAL EFFLUENT GUIDELINES					
		MAX DAILY (lbs per 100 lbs input) *	MAX DAILY BOD LBS/D FED EFF LIMIT	AVG MONTHLY (lbs per 100 lbs input) *	AVG MONTHLY BOD LBS/D FED EFF LIMIT
CFR 405 SUBPART	BOD INPUT LBS/DAY (from raw milk)				
Subpart I -- Condensed Milk Subcategory (new source)	196,127	0.076	149	0.038	75
Subpart J -- Dry Milk Subcategory (new source)	196,127	0.036	71	0.018	35
	BOD INPUT LBS/DAY (from condensed whey)				
Subpart K -- Condensed Whey Subcategory (new source)	66,365	0.022	15	0.011	7
Subpart L -- Dry Whey Subcategory (new source)	66,365	0.022	15	0.011	7
* pounds per 100 lbs of BOD input (from Federal Effluent Guideline)		Maximum lbs/daily	249	Monthly -- Average lbs/day	124

APPENDIX D -- RESPONSE TO COMMENTS

The Department received the following comments from WestFarm Foods to the Public Review draft permit and fact sheet:

Comment 1

S6.A: Scope of Work for Engineering Report submittal date has been set at 3 months after the effective date of the permit. Melanie (Michelle) Mandis had suggested setting that date in late February and we had agreed on February 24, 2006. Once the permit is issued WestFarm needs time to evaluate and determine the feasibility and cost of viable options. Three (3) months is a very short timeline for that and we request that it be changed to six (6) months.

The Department's Response: The permit's submittal date for the Scope of Work for Engineering Report will be changed to 6 months after the effective date of the permit.

Comment 2

S6.B: Draft Engineering Report submittal date is set at one (1) year after submittal of the Scope of Work for Engineering Report. If we choose to continue to discharge to surface water, condition S6.A requires that we conduct a Receiving Water Study. We would anticipate it may take 3 months or more to develop the Sampling and Analysis plan. Further, it is possible that the Receiving Water Study may require an entire year to evaluate seasonal impacts and the draft Engineering Report will need to include the results of the Receiving Water Study. We would also anticipate three (3) months or more to initiate the Sampling and Analysis plan once it has been developed. Therefore, it will be impossible to complete the draft Engineering Report one (1) year from submittal of the Scope of Work for Engineering Report. Consequently, we request that the submittal date for the Draft Engineering Report be set at two (2) years after submittal of the Scope of Work for Engineering Report.

The Department's Response: The permit's submittal date for the Draft Engineering Report will be changed to 30 months after the effective date of the permit.

Comment 3

S6.C: Final Engineering Report submittal is set for eleven (11) months after submittal of the draft Engineering Report. To allow more time for development of Engineering Plans and Specifications (S6.D) and for Implementation of those plans WestFarm suggests that the Final Engineering Report submittal date be set at six (6) months after the submittals of the draft Engineering Report.

The Department's Response: The permit's submittal date for the Draft Engineering Report will be changed to 3 years after the effective date of the permit.

Comment 4

S6.D: Engineering Plans and Specifications are set to be due nine (9) months after Final Engineering Report submittal. We agree that nine (9) months is likely necessary but sufficient to satisfy this requirement.

The Department's Response: The permit will set a date for the submittal of the Engineering Plans and Specifications 45-months after the effective date of the permit.

Comment 5

S6.E: Implementation Notification is set for six (6) months prior to permit expiration. To allow more time for implementation of the Engineering plans WestFarm requests that the Implementation Notification submittal be set at three (3) months prior to the permit expiration. During a recent phone conversation with Rick Frye, he mentioned that Ecology couldn't accept an implementation date beyond the expiration of the permit as WestFarm had requested. Setting the Implementation Notification date as per our request will still be within this permit cycle.

The Department's Response: The permit's date for the submittal for the Implementation Notification of the Engineering Report's recommendation will be changed to 3 months prior to the permit's expiration date.

Comment 6

S1.A.2: Final Limits for Discharge to Joint Drain 33.4 (Outfall #001) are scheduled in the permit to become effective six (6) months before the expiration of the permit. To be consistent with WestFarm's request for condition S6.E. above we request that the Final limits become effective three (3) months before the expiration of the permit.

The Department's Response: The effective date for the Final Limits for Discharge to Joint Drain 33.4 (Outfall #001) to take effect will be changed to 3-months prior to the expiration date of the permit.

Comment 7

S2.A.1: Footnote "j" requires background sample of JD 33.4 for Turbidity immediately upstream of WestFarm's discharge location. As Ecology is aware, at the point of WestFarm's discharge JD 33.4 an enclosed buried pipe. Therefore, this condition should state, "...immediately upstream or a location reasonably accessible upstream of WestFarm's discharge."

The Department's Response: The footnote "j" to the Monitoring Table in will be revised to state "immediately upstream or a location reasonably accessible upstream of WestFarm's discharge location".

Comment 8

S4.B2: Requires "At least 60-days prior to changing the location and/or disposition of this discharge a revised Appendix B shall be sent to the Department for review and approval." Prior approval should not be required if WestFarm were to send the Outfall 003 discharge to any of the following:

- Animal Feed
- Chemical Company
- Landfill

Therefore, we request that the following language be added at the end of the sentence quoted above, ", except if sending the discharge to animal feed, chemical plant or landfill". WestFarm Foods will notify Ecology of any such discharge.

The Department's Response: The permit's S4.B.2 will not be revised.

Comment 9

Our comments to condition S4.B.2 above also apply to page 33 of the Fact Sheet under "Operations and Maintenance". As such the last paragraph should not require sixty (60) days advance notice to Ecology for discharges to items 3, 4, 5, & 8 listed above that paragraph.

The Department's Response: Since the permit's S4.B.2 will not be revised, the fact sheet language on page 33 reflects the intent of the permit.